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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,411	01/23/2004	Yongcai Wang	85333SMR	9500

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EXAMINER

RAZA, SAIRA B

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/764,411

Applicant(s)

WANG ET AL.

Examiner

Saira Raza

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 02 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 6,7,12,13,15-19,21-25,28,29,31-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-11,14,20,26,27,30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/23/04, 11/4/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I with the election of the species represented by claims 8, 14, 20 & 30 in the reply filed on November 2, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claim 6, 7, 12, 13, 15-19, 21-25, 28, 29, 31-41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species or group there being no allowable generic or linking claim. Please note, claim 31 was withdrawn due to its assumed dependence (due to typographical error) on claim 21 (instead of claim 1), wherein claim 21 is a non-elected claim. Species election was made **without** traverse in reply filed on November 2, 2005.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5, 8-11, 14, 20, 26, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Redding, Jr. (US Patent No. 4,978,483).

5. In reference to claim 1, Redding discloses a process of forming microcapsules with a core of hydrophobic liquid material. In reference to claim 1, part (1); the process comprises mixing a solvent based mixture with a liquid medium resulting in the formation of a pre-mixture, wherein the solvent based mixture comprises a organic liquid phase and the liquid core material, and the liquid medium comprises water and a stabilizer. An example of stabilizer utilized by Redding is PVA (polyvinyl

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alcohol) which functions as a wall material and inherently functions as a stabilizer in the liquid medium and pre-mixture (Column: Lines: 2:38-57, Figures 4 & 5, 5:52-58, 5:59-65, 6:1-17, Example 5).

6. In reference to claim 1, part (2); the pre-mixture is introduced into a chamber and is homogenized under pressure. Specifically, the pre-mixture is subjected to high pressure for a short time period inside the chamber, resulting in the formation of capsules (microparticles). The capsules are then passed through a chamber in which the pressure is gradually reduced; hence the capsules are passed through a low-pressure chamber. The gradual reduction in pressure tends to prevent the capsules from disintegrating soon after being formed. It is clear that the pre-mixture is homogenized by forcing it through a high-pressure chamber into a low-pressure chamber, resulting in the formation of a microparticle dispersion. The microparticles have a mean size from 5-15 microns (2:38-57, 6:18-36, 16:58-66 (Example 1)).

7. In reference to claim 1, part (3); the encapsulating material is added in step (1) as illustrated in example 5, or it is added after step (2) as illustrated in example 6.

8. In reference to claim 1, part (4); the curing of the encapsulating material associated with the microparticles to form the microcapsules occurs either via pressure (condensation polymerization) or chemically (11:54-60 and 17:8-12).

9. In reference to claims 2-5, the process mentioned above results in the formation of microparticles (capsules) which have a mean size from 5 to 15 microns. Hence the microparticles size is greater than 2.0 microns and less than 15, 20 and 50 microns (16:58-66 (Example 1)).

10. In reference to claims 8 and 9, Redding discloses the formation of a multi-walled capsule, wherein the first wall and the second wall are made of different materials. The first encapsulating material (or first wall material) is added before or during the formation of the pre-mixture, and the

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second encapsulating material (or second wall material) is added after the pre-mixture homogenization under pressure (Example 6).

11. In reference to claims 10 and 11, Redding discloses that the pressure in the high-pressure chamber is 8,800 psi, and the pressure in the low-pressure chamber is gradually reduced to atmospheric pressure which 14.7 psi; hence the pressure differential between the high pressure passage and the low pressure area is greater than 2,000 and 4,000 psi (10:45 to 11:9, Example 5).

12. In reference to claim 14, pressure is utilized to harden and thicken the capsular walls, hence inherently the encapsulation material is cured via a condensation polymerization reaction (11:54-60).

13. In reference to claim 20, a variety of stabilizers can be utilized in the process of Redding; one example includes polyvinyl alcohol (Example 5, 6:1-17, Figure 5, 5:59-65).

14. In reference to claim 26, the microcapsules are inherently photohardenable; the core and shell material utilized by Redding is identical to those claimed herein, therefore photohardenability is an essential and inherent property of the microcapsules.

15. In reference to claim 30, a variety of wall (encapsulating) materials can be utilized in the process of Redding; one example includes polyurethane (Example 5, 6:1-17, Figure 5, 5:59-65).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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17. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

18. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Redding, Jr. (US Patent No. 4,978,483) as applied to claim 1 above, and further in view of Sanders et al. (US Patent No. 4,440,846).

19. Redding discloses the process of claim 1, wherein the core material is a hydrophobic liquid; however, he fails to teach that the liquid core material is a color precursor, which can react with a developer material to form a color. Hence attention is directed towards the Sanders reference.

20. Sanders discloses a process of the formation of microcapsules with an internal phase (core) comprising a color developer, and an encapsulating shell material surrounding the internal phase. Furthermore, the capsules produced by Sanders have an average particle size of 4.5 microns (prior to curing of the encapsulating material). Sanders teaches that the color precursor can react with a developer material resulting in the formation of a color.

Since Sanders is in the same field of endeavor as Redding (e.g. process of forming microcapsules with a core hydrophobic liquid encapsulated in a shell), it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a core material (which is a hydrophobic liquid), specifically a color developer, which can react with a developer material to form a color in the process of Redding in view of the teachings of Sanders in order to make an imaging system, utilize an internal phase which is the most commonly employed material in

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imaging systems, and to utilize a color precursor with electron donating capabilities and a color developer with electron accepting capabilities (5:5-13, 6:7-40).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saira Raza whose telephone number is (571) 272-3553. The examiner can normally be reached on Monday-Friday from 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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